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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,942	08/10/2001	Yoshio Satoh	21.1966-CRE-C	6889
21171	7590	03/15/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			SUMMONS, BARBARA	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/925,942	SATO ET AL.	
	Examiner	Art Unit	
	Barbara Summons	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,22-33 and 35-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22,23,30-33 and 36 is/are allowed.
- 6) ☒ Claim(s) 1,24-29,35 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

REISSUE/DETAILED ACTION

Withdrawn Claim Rejections - 35 USC § 112

1. The amendment received 11/17/04 has overcome the prior § 112 rejections, and they are withdrawn.

Withdrawal of Previously Indicated Allowable Subject Matter

2. The indicated allowability of claims 24, 35 and 37 is withdrawn because Applicants have amended these claims to be broader by removing the reference to "SAW", resulting in the new grounds of claim rejections below.

Maintained and New Grounds of Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 25, 26 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hikita et al. U.S. 5,115,216 (of record) taken in conjunction with Hikita JP 59-158117 (of record) for reasons of record.

Regarding the limitation in the last paragraph of claim 1, Fig. 1 of Hikita '216 shows an inductance element 3-1 located between one of the band pass filters located at the first stage (i.e. common terminal/antenna stage) and one of the common signal terminals 1. Note that additional structure such as another inductance element 3-1 that is located between the other band pass filter and the common terminal is irrelevant due to the open claim language "comprising" and because the last paragraph of the claim as recited, by its broadest interpretation, does not exclude other inductance elements.

Similarly, regarding the last paragraph of claim 25, the impedance matching circuit 3-1, 3-2 is located only between the first stage of the second band pass filter and the common signal terminals, and another different matching circuit is located only between the first stage of the first filter and the common signal terminals, wherein the additional structure of another matching circuit is irrelevant to the claim as now worded.

5. Claims 27 and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hikita et al. U.S. '216 (of record) in conjunction with Hikita JP '117 (of record) as applied to claim 25 above, and further in view of Setsune et al. U.S. 4,409,567 (of record) for reasons of record.

6. Claims 24, 35 and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ketcham U.S. 5,231,327 in view of Black et al. U.S. 4,320,365.

Fig. 23 of Ketcham discloses an acoustic wave filter comprising: a plurality of first acoustic wave resonators X2 and X4 on a single piezoelectric substrate 30 (Fig. 24) each having a pair of terminals and inherently having a resonance frequency (frp), the

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first resonators X2 and X4 being connected in parallel arms of the filter; a plurality of second acoustic wave resonators X1, X31, X32 and X5 on the substrate 30 each having a pair of terminals and inherently having a resonance frequency (frs), the second resonators being provided in a series arm of the filter to form a ladder filter.

However, Ketcham does not explicitly disclose the relation of the resonance frequency of the second/series resonators (frs) being equal to the antiresonance frequency of the first/parallel resonators (fap), and does not show bonding inductance elements from the parallel resonators and a package.

The Examiner takes Official Notice that it is known in bulk acoustic wave resonator ladder filters for the series resonators to have a resonance frequency equal to the antiresonance frequency of the parallel resonators since this is how the pass band is formed in the ladder type acoustic wave filter (see numerous other references of record as evidence, especially Curran 3,222,622, which is discussed in Ketcham).

Additionally, Black et al. discloses that it is known to use bonding wires (30-33 in Fig.1), which inherently have inductance, to make connections to acoustic resonators. Black et al. also discloses packaging (see col. 5, lines 36-42), and Ketcham also discloses that it is known to package completed acoustic resonator filters (see col. 1, lines 33-40).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the acoustic wave ladder filter of Ketcham (e.g. Figs. 23 and 24), if even necessary, such that the resonator resonance and antiresonance frequencies would have been as recited, the filter would have been

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in a package, and the connections from ground pads MG1 and MG2 (Fig. 24) of the parallel resonators would have been made by bonding wire inductance elements to a ground outside the piezoelectric substrate, because one of ordinary skill in the art would have known to provide the resonator resonance/antiresonance frequency relationship in order to provide band pass filter characteristics (see also Ketcham col. 2, lines 39-42 and col. 12, lines 44-46), and because providing the device in a package is suggested by both Ketcham (col. 1, lines 33-40) and Black et al. (col. 5, lines 36-42), which would have provided the advantageous benefit of protection from environmental factors as would have been known by one of ordinary skill, and because Ketcham is silent as to how the resonator are to be "bonded" (see Ketcham col. 10, lines 66-68) to external circuitry and grounds (Ketcham col. 11, lines 9-10), thereby suggesting to one of ordinary skill that any well known manner, such as bonding wires that inherently have inductance, as suggested by the exemplary teaching thereof by Black (30-33 in Fig. 1), would have been usable therewith.

Allowable Subject Matter

7. Claims 22, 23, 30-33 and 36 are allowable over the prior art of record.

Response to Arguments

8. Applicant's arguments filed 11/17/04 have been fully considered but they are not deemed persuasive.

Applicants argue in regards to the independent claims 1 and 25 rejected by Hikita et al. '216 with Hikita JP '117, that since the Hikita/Hikita combination has two filters that

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each have a matching circuit 3-1, 3-2, such that there is an inductance element/matching circuit between each of the filters and the common terminals, then the limitations in the last paragraph of each of claims 1 and 25 are not met by the combination (see page 10 of the amendment received 11/17/04). The Examiner disagrees and finds the argument unpersuasive for reasons explained in the rejection paragraph 4 above.

Claim 1 does not use the word "only" and does use open language "comprising" so that the prior art may have additional structure as long as it also has the recited features. Claim 25 does use the word "only", but uses it in a place that does not impart the meaning Applicants are apparently arguing. For example, the Hikita/Hikita combination does show "an impedance matching circuit located only between the first stage of the second band-pass filter and the common signal terminals", but does not show - - only one impedance matching circuit located only between the first stage of the second... - -, as Applicants appear to be correctly arguing. It should be noted that the second "only" should not be left out since then the Examiner would simply combine the two matching circuits and call it one large matching circuit that is located between both the first and second filters and the common terminals.

Similarly, regarding the claim 1 limitation, Applicants appear to be correctly arguing that there is - - only one inductance element located between one of the band-pass filters located at the first stage and one of the common signal terminals - -, but the claim as now worded is broad enough to not exclude the Hikita/Hikita combination with its additional structure.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Curran et al. 3,222,622 discloses an acoustic resonator ladder filter (see Figs. 4, 9 and 11-14), and describes the well known setting of the resonance frequency of the series resonators equal to the antiresonance frequency of the parallel resonators at the center frequency of the pass band to form a band-pass filter (see col. 4, lines 37-45).

Koneval U.S. 3,209,178 also discloses an acoustic resonator ladder filter (see Fig. 10) that is packaged.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

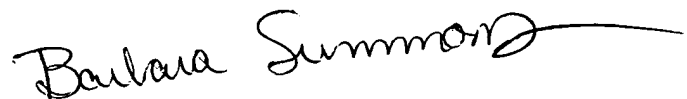
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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs
March 8, 2005

A handwritten signature in black ink that reads "Barbara Summons". The signature is written in a cursive style with a long horizontal line extending from the end of the name.

**BARBARA SUMMONS
PRIMARY EXAMINER**